Jessica Head

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Cooperative Institute for Limnology and Ecosystem Research (CILER)
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CITIZENSHIP: Canadian

LANGUAGES: English, French

EDUCATIONAL BACKGROUND

PhD - University of Ottawa, Ottawa, Canada (09/2000 – 09/2006)
Faculty of Science (Biology)
Specialization in Ecotoxicology
Supervisor: Dr. Sean Kennedy
Thesis title: Variation in the CYP1A response to dioxin-like compounds in avian species

BSc - McGill University, Montreal, Canada (09/1994 – 04/1997)
Faculty of Medicine (Biochemistry)

RESEARCH AND PROFESSIONAL EXPERIENCES

Research Investigator (07/2008 – present)
Cooperative Institute for Limnology and Ecosystem Research
University of Michigan - Great Lakes Environmental Research Lab
Ann Arbor, Michigan, USA

Contractor (01/2008 – 03/2008)
Environment Canada, Ottawa, Canada
Wildlife Toxicology and Disease Division
- Present scientific results in the form of peer-reviewed manuscripts and conference presentations

Biologist (09/2006 – 09/2007)
Environment Canada, Ottawa, Canada
Wildlife Toxicology and Disease Division
- Monitored health of colonial fish-eating birds in the Great Lakes
- Developed novel molecular and biochemical methods for assessing health of birds
- Responsibilities included: project proposal and planning, field studies, method development and troubleshooting, supervision of students and technical staff, preparation of technical reports and oral presentations, submission of scientific publications to peer-reviewed journals

Graduate Student, Doctoral (09/2000 - 09/2006)
University of Ottawa, Ottawa, Canada
Centre for Advanced Research in Environmental Genomics (CAREG)
- Characterized molecular mechanisms underlying variation in biomarker responses to dioxin-like environmental contaminants in avian wildlife using genomic and biochemical methods
- Developed a genetic test for species sensitivity to dioxin-like compounds that is currently being used for several ecological risk assessment projects across the USA
- Supervised research of two undergraduate students

Journal Reviewer (09/2006 – present)
Comparative Biochemistry and Physiology - Part C: Toxicology and Pharmacology (2)
Environmental Toxicology and Pharmacology (1)
Archives of Environmental Contamination Toxicology (1)
Journal of Toxicology and Environmental Health (1)

Mini-course Instructor (05/2003)
University of Ottawa, Ottawa, Canada
- Developed and taught a one week Wildlife Toxicology course for 30 high school students

Laboratory Demonstrator (09/2000 - 04/2001)
University of Ottawa, Ottawa, Canada
- Cellular Biology – introduced and supervised labs, corrected reports and exams

Laboratory Analyst (1997-2000)
Phoenix International Life Sciences, Montreal, Canada
- Extracted drugs from biological matrices and quantitatively determined drug concentrations. Detection techniques include GC/MS, GC/ECD and atomic absorption spectroscopy.

AWARDS

Best presentation by a Young Scientist - International Symposium on Chemical Pollution and Environmental Changes, Ehime University, Matsuyama, Japan 2006

Nomination for Best Thesis Award - University of Ottawa, Ottawa, ON, Canada 2006

3rd prize – Best Student Platform Presentation - SETAC 2005 conference, Baltimore, Maryland, USA 2005

Student travel award - SETAC 2005 conference, Baltimore, Maryland, USA 2005

Finalist for the Otto Hutzinger Student Presentation Award - Dioxin conference, Boston, Massachusetts, USA 2003

Volunteer Award - 'Let's Talk Science' Program, Ottawa, ON, Canada 2002

Bursary for CHI Gene Quantification conference – Stratagene, La Jolla, CA, USA 2002

PUBLICATIONS AND PRESENTATIONS

PEER-REVIEWED PUBLICATIONS:

Head J.A., Hahn M.E., Kennedy S.W. 2008. Key amino acids in the aryl hydrocarbon receptor predict dioxin sensitivity in avian species, Environmental Science & Technology, 42: 7535-7541.

Head J.A., Kennedy S.W., 2007. Differential expression, induction, and stability of CYP1A4 and CYP1A5 mRNA in chicken and herring gull embryo hepatocytes. Comp. Biochem. And Physiol. – Part C: Toxicol. Pharmacol. 145: 617-624.

Head J.A., Kennedy S.W., 2007. Same-sample analysis of ethoxyresorufin-O-deethylase activity and cytochrome P4501A mRNA abundance in chicken embryo hepatocytes. Anal. Biochem. 360: 294-302.

Head J.A., O'Brien J., Kennedy S.W., 2006. Exposure to 3,3',4,4',5-pentachlorobiphenyl during embryonic development has a minimal effect on the cytochrome P4501A response to 2,3,7,8-tetrachlorodibenzo-p-dioxin in cultured chicken embryo hepatocytes. Environ. Toxicol. Chem. 25: 2981-2989.

Head J.A., Trudeau V.L., Kennedy S.W., 2003. Variation in cytochrome P4501A mRNA inducibility among individual chickens and herring gulls. Organohalog. Compd. 64: 403-406.

MANUSCRIPTS IN REVIEW:

Basu N., **Head J.A.**, Mammalian wildlife as complementary models in neurotoxicology, submitted to Neurotoxicology and Teratology, August 28, 2008

Head J.A., Kennedy S.W., Relationship between an *in vitro* and an *in vivo* measure of dioxin sensitivity in birds. Submitted to Environmental Science and Technology, September 4, 2008.

Head J.A., Kennedy S.W., Factors contributing to interindividual variation in the CYP1A response to TCDD in herring gull embryo hepatocytes. Submitted to Environmental Toxicology and Chemistry, September 5, 2008.

MANUSCRIPTS IN PREPARATION:

Head J.A., Farmahin R., Kehoe A., Kennedy S.W., Shutt J.L. Characterization of the avian aryl hydrocarbon receptor 1 from blood using non-lethal sampling methods.

Head J.A., Basu N., Review: Cell culture bioassays for predicting *in vivo* toxicity of dioxin-like compounds in fish, mammals, and birds.

SELECTED CONFERENCE PRESENTATIONS AND PROCEEDINGS:

Invited oral presentation: **Head J.A.,** Kennedy S.W. Assessing risk from dioxin-like compounds in Great Lakes birds: Is EROD a useful biomarker? In, Special Symposium: A retrospective view of avian biomonitoring and contaminant effects in the Great Lakes: Lessons learned and implications for Great Lakes Management. 27th Annual Meeting, Society of Environmental Toxicology and Chemistry (SETAC). Milwaukee, Wisconsin, USA, November 2007.

Poster presentation: **Head J.A.**, O'Brien J, Hahn M.E., Kennedy S.W. Species sensitivity to dioxin-like compounds can be predicted from AHR genotype using non-lethal sampling methods. 27th Annual Meeting, Society of Environmental Toxicology and Chemistry (SETAC). Milwaukee, Wisconsin, USA, November 2007.

Oral presentation: **Head J.A.**, Genetic and molecular approaches for assessing the health of Great Lakes birds, Great Lakes Environmental Research Laboratory (GLERL). Ann Arbor, Michigan, USA, September 25, 2007.

Oral presentation: **Head J.A.**, Karchner S.I., Kehoe A., Hahn M.E., Kennedy S.W. Aryl hydrocarbon receptor genotype in birds: a potential biomarker for species sensitivity to dioxin-like compounds. 46th annual meeting, Society of Toxicology (SOT). Charlotte, North Carolina, USA, March 2007.

Oral presentation: **Head J.A.,** Crump D., Kennedy S.W., Shutt L.S. Reading the code: using genetics to determine sex, age, and dioxin sensitivity in birds. National Wildlife Research Centre seminar series. Ottawa, Ontario, Canada, March 2007.

*Extended abstract for proceedings***: Head J.A.**, Hahn M.E., Kehoe A., Kennedy S.W. Aryl Hydrocarbon Receptor Genotype and Dioxin Sensitivity in Four Species of Galliform Birds. Proceedings for the International Symposium on Chemical Pollution and Environmental Changes. Matsuyama, Japan, November 2006: 89-92.

Invited oral presentation: **Head J.A.**, Hahn M.E., Kehoe A., Kennedy S.W. A genetic test for sensitivity to dioxin-like compounds in avian species. International Symposium on Chemical Pollution and Environmental Changes. Matsuyama, Japan, November, 2006.

Oral presentation: **Head J.A.**, Hahn M.E., Kehoe A., Kennedy S.W. Aryl hydrocarbon receptor genotype in birds; a potential biomarker for species sensitivity to dioxin-like compounds. 27th Annual Meeting, Society of Environmental Toxicology and Chemistry (SETAC). Montreal, Quebec, Canada, November 2006.

Poster presentation: **Head, J.A.**, Kennedy S.W. Same sample analysis of EROD activity and CYP1A mRNA abundance in chicken embryo hepatocytes. 27th Annual Meeting, Society of Environmental Toxicology and Chemistry (SETAC). Montreal, Quebec, Canada, November 2006.

Invited oral presentation: **Head J.A.**, A genetic test for sensitivity to dioxin-like compounds in avian species. Laurentian Society of Environmental Toxicology and Chemistry (SETAC) meeting. Ottawa, Ontario, Canada, September 2006.

Oral presentation: **Head J.A.**, O'Brien J., Kennedy S.W. Does embryonic exposure to PCB 126 alter the CYP1A response to TCDD in cultured hepatocytes? 26th Annual Meeting, Society of Environmental Toxicology and Chemistry (SETAC). Baltimore, Maryland, USA. November 2005.

Invited oral presentation: **Head J.A.** Effects of interindividual variation on biomarker studies. Laurentian Society of Environmental Toxicology and Chemistry (SETAC) meeting. Ottawa, Ontario, Canada, September 2004.

Oral presentation: **Head J.A.** Gene expression in avian embryo hepatocytes: a marker for resistance to 2,3,7,8-TCDD. Director General's Science Forum, Environment Canada. Ottawa, Ontario, Canada, February 2003.

Poster presentation: **Head J.A.,** Trudeau V.L., Kennedy S.W. Variation in cytochrome 4501A mRNA inducibility among individual chickens and herring gulls. Dioxin 2003 conference. Boston, Massachusetts, USA, August 2003.

Poster presentation: **Head J.A.**, Jones S., Trudeau V.L., Kennedy S.W. Interindividual variability in the avian response to 2,3,7,8-tetrachlorodibenzo-p-dioxin. 23rd Annual Meeting, Society of Environmental Toxicology and Chemistry (SETAC). Salt Lake City, Utah, USA. November 2002.

Poster presentation: **Head J.A.**, Kennedy S.W., Horner R. Development of a quantitative RT-PCR method for measuring CYP1A induction in avian embryo hepatocytes. Cambridge Health Institute Gene Quantification conference. San Diego, California, USA. February 2002.